

REMARKS

By this amendment, claims 1-5 and 7-11 are pending. Claims 1-5 and 7-9 stand rejected. Claims 1 and 9 have been amended. Claims 10 and 11 have been added. In view of the amendments to the claims and the remarks below, Applicant respectfully requests that the rejections be withdrawn and the claims be allowed.

Claims 1-5 and 7-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,320,621 to Gordon et al. ("Gordon") in view of U.S. Patent No. 5,720,745 to Farin et al. ("Farin"). The rejection is respectfully traversed.

Claim 1 recites an instrument for plasma coagulation. The instrument includes "a tubular probe body with a tube wall defining a lumen through which an inert gas is conducted." The instrument also includes "an ignition electrode located within the lumen ..., a current conductor" and "a tubule made of a high-temperature-resistant material." The instrument includes "a fixing device fixing said ignition electrode in a predetermined position within said probe body, and comprising a flat body with longitudinal edges by means of which said flat body is attached to said tube wall such that said flat body extends diametrically across an entire width of said lumen, and to which the ignition electrode is attached." The "tubule is inserted into said lumen in the region of said outlet, and said flat body is disposed at an end of the tubule that faces away from said outlet." As explained below, neither Gordon nor Farin teach all of the limitations of claim 1.

Gordon teaches an electrode that is held in place by a clip that is "preferably formed from a cylindrical tube which has been deformed into a configuration which has a central conduit-like section which engages and supports the electrode and two opposed conduit-like lobe portions which extend outward and slightly compress against the nozzle to hold the electrode and clip in place in the nozzle." Gordon, Abstract. The clip in Gordon, however, is not a flat body. A portion of the clip is flat. Gordon, fig. 6, ref. no. 42. However, this portion does not extend "diametrically across an entire width of said lumen," as recited in claim 1. Instead, the portion is radially-positioned and only extends across less-than-half of the lumen. Thus, Gordon fails to teach the claim 1 flat body. Furthermore, the clip in Gordon does not include "longitudinal edges by means

of which said flat body is attached to said tube wall.” Because the clip in Gordon is formed from a “cylindrical tube,” the Gordon clip has no longitudinal edges. Therefore, for at least these reasons, Gordon fails to teach each limitation of claim 1.

Farin fails to remedy the inadequacies of Gordon. Farin, used in the Office Action to teach the inclusion of an inner tubule, fails to teach the recited flat body as recited in claim 1. Farin does teach a hollow cylindrical electrode 8, as referenced in the Office Action. Farin, col. 9, l. 26; Office Action, p. 3. However, like Gordon, the Farin cylindrical electrode 8 fails to teach a flat body that extends across an entire width of the lumen and a flat body with longitudinal edges. Thus, neither Farin nor Gordon teach the limitations of claim 1. Therefore, claim 1 is allowable over the combination of Gordon and Farin for at least these reasons. Claims 2-5, 7 and 8 depend from claim 1 and are allowable over the cited combination for at least the same reasons that claim 1 is allowable over the cited combination.

Claim 9 recites an instrument for plasma coagulation. The instrument includes “a tubular probe body with a tube wall defining a lumen through which an inert gas is conducted.” The instrument also includes “an ignition electrode located within the lumen” and a current conductor. The instrument includes “a fixing device fixing said ignition electrode in a predetermined position within said probe body, and comprising a flat body with longitudinal edges by means of which said flat body is attached to said tube wall such that said flat body extends diametrically across an entire width of said lumen, and to which the ignition electrode is attached such that the ignition electrode extends further into the lumen in a direction of said outlet than the flat body of the fixing device.” For reasons explained above in relation to claim 1, the combination of Gordon and Farin fails to render claim 9 unpatentable. Specifically, neither Gordon nor Farin teach a flat body that extends across an entire width of the lumen or a flat body with longitudinal edges. Therefore, claim 9 is allowable over the cited combination.

For at least these reasons, claims 1-5 and 7-9 are allowable. Applicant respectfully requests that the rejection be withdrawn and that the claims be allowed.

Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gordon in view of Farin and further in view of U.S. Patent Application Publication No. 2002/0016590 to Schnitzler (“Schnitzler”). The rejection is respectfully traversed.

Claims 4 and 5 depend from claim 1, and hence, as explained above in relation to claim 1, are not rendered unpatentable by either Gordon or Farin or the combination thereof. Schnitzler also fails to remedy the inadequacies of Gordon and Farin.

Schnitzler discloses a probe electrode that includes a flat body in the form of a discharge portion of the electrode. Schnitzler, ¶ [0009]. The discharge portion of the electrode aids in centering the electrode. Schnitzler, ¶ [0016]. The electrical lead portion of the electrode is spot-welded to the discharge portion. Schnitzler, ¶ [0018]. However, as explained below, no valid motivation for combining Gordon with Schnitzler is presented in the Office Action, and the Schnitzler device is not combinable with Gordon and, in fact, teaches away from the recited limitations and any such combination.

The Office Action asserts that it would be obvious to “implement the ignition electrode of Gordon [in the device of Schnitzler] such that it extends further into the lumen in a direction of the outlet than the flat body of the fixing device of Schnitzler since one of ordinary skill in the art would appreciate keeping the flat body as a fixing means since it serves to minimize aerodynamic turbulence of the gas stream (Schnitzler, ¶ 0027) and since Gordon teaches the configuration where an electrode extends further into the lumen in a direction of the outlet than the flat body of the fixing device as exemplified by Gordon in order to center the electrode to achieve the best energy transfer and expose a maximum amount of the electrode to the flow of gas within the nozzle (Fig. 5, col. 1, lines 33-38).” Office Action, pp. 7-8 (in reference to claim 9, but referring to limitations also present in claim 1). However, contrary to the Office Action, there is no teaching in Gordon that extension of the ignition electrode further into the lumen in a direction of the outlet than the flat body of the fixing device serves to center the electrode to achieve the best energy transfer or to expose a maximum amount of the electrode to the flow of gas.

Gordon is clear in teaching that the symmetric, butterfly-like cross-section of clip 22 together with the clip's length allows the clip 22 to hold the electrode 24 coaxially in the nozzle without additional support for the electrode 24. Gordon, col. 4, ll. 12-18, 25-27, 33-37; fig. 6. The symmetric, butterfly-like cross-section of clip 22 is responsible for increasing the surface area of the electrode 24 exposed to the gas. Gordon, col. 7, ll. 57-60; col. 4, ll. 12-18, 25-27, 43-44, 52-55, 61-65; fig. 6. Tube portions formed by the lobes 32 of the clip 22 allow gas to pass therethrough, and the gas thus maintains contact with the electrode 24. Gordon, col. 4, ll. 52-55. Therefore, for at least this reason, Gordon fails to teach that the longitudinal position of the electrode 24 relative to the clip 22 influences the surface area of the electrode exposed to the gas, as asserted in the Office Action. Accordingly, there is no motivation in Gordon or in the Office Action to combine the teachings of Gordon with the teachings of Schnitzler.

Additionally, Schnitzler teaches away from a device wherein the ignition electrode extends further into the lumen in a direction of the outlet than the flat body of the fixing device. In Schnitzler, the ignition electrode is the flat body. The Schnitzler discharge portion or ignition electrode is intentionally formed as a flat structure to provide a large surface area that allows the gas to conduct heat away in a sufficient manner to avoid heating of the probe. Schnitzler, ¶¶ [0009], [0010]. As Schnitzler explains, an electrode having a distal tip as illustrated by element 71 in figure 6 of Schnitzler has a tendency to burn away. Schnitzler, ¶ [0006]. The dissipation of heat achieved by a discharge portion formed as a flat structure has the advantage of minimizing the rate at which the discharge portion of the probe burns away. Schnitzler, ¶¶ [0009]-[0011]. Therefore, Schnitzler teaches away from any limitation or combination that requires that "the ignition electrode extends further into the lumen in a direction of said outlet than the flat body of the fixing device."

For at least these reasons, Gordon, Farin and Schnitzler fail to teach each limitation of claims 4 and 5, and the references are not combinable. Schnitzler teaches away from the limitations and combination. Accordingly, claims 4 and 5 are allowable over the cited combination. Applicant respectfully requests that the rejection be withdrawn and that the claims be allowed.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Schnitzler in view of Gordon. The rejection is respectfully traversed.

As explained above, Gordon fails to render claim 9 unpatentable. As also explained above, Schnitzler fails to remedy the inadequacies of Gordon. There is no motivation in Gordon to combine Schnitzler and Gordon. Furthermore, Schnitzler teaches away from the recited limitations of claim 9. Specifically, Schnitzler teaches away from an ignition electrode that "extends further into the lumen in a direction of said outlet than the flat body of the fixing device." Claim 9 is therefore allowable over the cited combination. Accordingly, Applicant respectfully requests that the rejection be withdrawn and that the claim be allowed.

In view of the above, Applicant believes the pending application is in condition for allowance. If there are any additional charges in connection with this filing or any subsequent filings (including but not limited to issue fees), the Examiner is respectfully requested and authorized to charge Deposit Account No. 04-1073 therefor under Order No. E7900.2041/P2041.

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